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## Air Force takes smart weapons back to school

by 1st Lt. James Madeiros, Air Armament Center

EGLIN AIR FORCE BASE, Fla. — A successful moving target engagement mission was completed here recently through a joint effort that demonstrated the capability for a weapon to engage tactical moving targets while in flight.

The test employed a weapon pod that simulated an actual weapon, which included a mission computer, multi-mode seeker and a Link-16 radio, said Lt. Kyle Swope, Air Force Research Laboratory weapon data link engineer. When combined, these components allowed the surrogate weapon to track and acquire a moving target using updates provided by joint terminal air controllers on the ground.

"The surrogate would continue to receive the updates (from the JTACs through Link-16), and track those updates until the seeker was able to acquire a lock," Lieutenant Swope said. "Once the seeker was locked on to the target, the guidance was provided by the seeker."

As the development stand-off munitions such as the Joint Air-to-Surface Stand-off Missile and Small Diameter Bomb shape the future of weapons technology, the ability to communicate with those weapons, to give and receive in-flight updates, has the potential to largely increase their utility.

"This is important since stand-off weapons are becoming more prevalent," Lieutenant Swope said. "For engaging moving targets, the target could have possibly moved a considerable distance in the time it takes a stand-off weapon to get on target, so in-flight updates and a seeker may be two critical parts in a moving target engagement scenario."

A significant element of this test's success was the direct communication between the JTACs and a simulated weapon in flight, which allowed for continuous target location updates. Support for this role was provided by personnel from the Air Force Special Operations Command, Air Combat Command and Joint Close Air Support Joint Test Team, and marked the first time such communication was possible, Lieutenant Swope said.

"These were the guys on the ground generating target coordinates with their laser rangefinder and a laptop," he said.

The ability to communicate with an in-flight weapon, such as SDB, would have many benefits, one being in a scenario in which a moving target must be engaged in weather.

Our warfighter has identified a capability gap for engaging mobile targets in weather," said Col. Jim McClendon, Air Armament Center Miniature Munitions Group commander. "SDB Increment II is the selected and funded solution to fill that gap, and the data link and seeker efforts conducted by AFRL are being closely monitored by our office for applicability to the eventual SDB Increment II design."

Shifting toward "network-centric warfare" by working to enable two-way communication between a weapon and the warfighter in the air and on the ground requires advances in technology that will reduce the size, weight and power needed for the components, which engineers are now beginning to address.

"If successful and fully implemented, the warfighter could possibly redirect a weapon, perform collaborative targeting and retrieve information from the weapon that was previously unattainable," said Lieutenant Swope.

This step in acquiring a moving target on the ground by a weapon in flight, which would be a revolutionary advance in weapons technology, was accomplished through AFRL, Air Armament Center Capabilities Integration Directorate, contractor and wide-range unit support.

"This is a Team Eglin approach," said AFRL weapons data link program manager Michelle White. "We had great support from leadership within AFRL, as well as all of Team Eglin." @